

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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SERIAL NO.: 10/580,705

ART UNIT: 3752

FILED: March 6, 2007

EXAMINER: Cernoch, S. M.

TITLE: MIST-SPRAYING APPARATUS

Amendment A: REMARKS

Upon entry of the present amendments, previous Claims 1 - 14 have been canceled and new Claims 15 - 27 substituted therefor. Reconsideration of the rejections, in light of the forgoing amendments and present remarks, is respectfully requested. The present amendments have been entered for the purpose of placing the claim language into a more proper U.S. format and also for the purpose of more clearly distinguishing the present invention from the prior art.

In the Office Action, it was indicated that Claims 1 - 6, 9 and 12 - 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gettinger patent in view of the Moy patent. Claim 7 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gettinger patent in view of the Moy patent and further in view of the Herr patent. Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gettinger patent in view of the Moy patent and further in view of the Fuchs patent. Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gettinger patent in view of the Moy patent and further in view of the Nishi patent. Additionally, Claim 1 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

As an overview to the present reply, Applicant has revised previous Claims 1 - 14 in the form

of new Claims 15 - 27. In particular, new Claims 15 - 24 respectively reflect the limitations of previous Claims 1 - 10. New dependent Claims 25 - 27 reflect the limitations of previous dependent Claims 12 - 24, respectively. In particular, the new claims express the original limitations in a more proper U.S. format, including proper antecedent bases and proper structural interrelationships throughout. Any indefinite terminology found in the original claim language has been corrected herein. In particular, where the "adapted to" language has been used previously, proper "means-plus-function" terminology is provided in the new claims.

Applicant respectfully disagrees with the Examiner's analysis relative to the obviousness of the present invention with respect to prior art. In particular, the Gettinger patent describes a hand-held spraying apparatus that comprises an air atomized spray nozzle. In such a nozzle, a jet of air is used to break up a liquid to form a spray, the pressure of the air provides the energy required for breaking up the liquid into a spray. In Gettinger patent, this jet of air is supplied by a passageway 44 into a chamber 40 in which is retained an unpressurized quantity of liquid available for spraying. The jet of air issues through the nozzle 50 into the chamber 40 where it acts to break up the liquid and to force the liquid out of the exit orifice 42 in the form of an atomized jet. The exit orifice 42 is, therefore, the atomizing orifice and the atomizing nozzle comprises the whole of the nozzle 30.

The Moy patent describes a sprayer in which a gaseous stream is pumped through a duct 18 into a venturi 5. Liquid is sucked up from the reservoir 2 via the tube 25 and is entrained in the gaseous stream passing through the venturi to issue from the venturi 5 as a vaporized stream. This stream is then passed along column 6 where it must negotiate the baffles prior to exiting from the body via the nozzle 28. This nozzle 28 is enclosed within a second nozzle 30 of a fluid accelerating flow that is provided around the nozzle 28 and that envelops the atomized flow emanating from the

nozzle 28.

In the Official Action, it was stated that the Gettinger patent does not teach that the atomizing nozzle is located within an outlet conduit such that atomizing particles emitted by the atomizing nozzle are entrained in an air stream. However, it is also stated that the Moy patent does teach this feature. Applicant respectfully contends that neither the Gettinger patent nor the Moy patent nor a combination thereof has the provision of a control means for controlling operation of the air-blowing means and the spraying means such that operation of the air-blowing means is commenced prior to operation of the atomizing nozzle and continued after operation of the nozzle has ceased in order to continue circulation of the air and any atomized particles entrained therein around the space for a predetermined period of time.

Applicant respectfully disagrees with the Examiner that the Gettinger patent provides such a control means. In the present invention, the air provided by the air blowing means is not used to atomize the liquid but only to enhance its distribution. In Gettinger patent, the atomizing nozzle 36 (comprising the atomizing orifice 42) does not operate independently of the air blowing means. Hence, the operation of the atomizing nozzle 36 must, of necessity, continue until operation of the air blowing means ceases because the air flow issues through the atomizing orifice 42 itself. As indicated in lines 48 - 64 of column 2 of Gettinger patent, the airflow blows air through the chamber 40 and will continue to atomize liquid therein after cessation of the supply of liquid to the chamber 40 "to prevent dripping, to ensure consistency of spray and to clean the nozzle". All three of these reasons for the continuation of the airflow imply that the nozzle 36 continues an atomizing discharge during the short period that the air flow continues after cessation of delivery of the liquid to the chamber 40. As such, Applicant respectfully contends that the arrangement in the Gettinger patent

is fundamentally different from the arrangement of the present invention. In the Gettinger patent, the air-blowing means is also the spraying means and is incapable of independent operation.

Although the Examiner states that the apparatus of Gettinger patent could be modified by using the nozzles of Moy, it is not clear how this could be achieved. This is particularly true given the fact that the atomizing nozzle of Gettinger patent is the nozzle 36 as a whole. Even if the apparatus of Moy were to be modified using the Gettinger nozzle, there is still no teaching that the fluid accelerating flow provided via the conduit 29 to the nozzle 30 is controlled in the way required by the present invention.

Relative to dependent Claims 17 and 18, Applicant respectfully contends that Figure 1 of the Gettinger patent does not indicate that the conduit 46 has a rectangular cross-sectional profile or that the outlet conduit 44 has a slot such that air passes in a slot formed therethrough. There are no teachings or suggestions within Figure 1, or within the specification, that any of these items has anything but a circular cross-section. A circular cross-section profile for the shaft 48 that is attached to the protruding portion 46 and outlet 44 is clearly shown as circular in Figure 1A. Shafts 48, 46 and 44 are indicated as being constructed in one piece in Figure 1. As such, Applicant respectfully contends that these dependent Claims are patentably distinguishable from the prior art combination.

Based upon the foregoing analysis, Applicant contends that independent Claim 15 is now in proper condition for allowance. Additionally, those claims which are dependent upon Claim 15 should also be in condition for allowance. Reconsideration of the rejections and allowance of the

claims at an early date is earnestly solicited. Since no new claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,

November 10, 2008	/Andrew W. Chu/
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